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LAW DEPARTMENT FACSIMILE COVER SHEET

Page 1 of 7

To: Diana Roseman

Facsimile: 703-746-4649

Telephone:

From: Kim Gregg, IP Paralegal

Telephone: 832-813-4642

Facsimile: 832-813-1804

Time Sent: 9:23 AM

Date: December 16, 2004

Re: US Patent No. 6,642,324

Comments:

Per your request, attached is a copy of the Notice of Allowability and Examiner's Amendment for the above-referenced matter. This is needed to complete the process for a Certificate of Correction.

Please call Kim Gregg at 832-813-4642 if all pages are not received.

CONFIDENTIALITY NOTICE

This facsimile contains privileged and confidential information intended for the use of the addressee(s). If you are not the intended recipient of this facsimile or the employee or agent responsible for delivering it to the intended recipient, you are hereby notified that any dissemination or copying of this facsimile is prohibited. If you have received this facsimile in error, please immediately notify us by telephone and return the above facsimile and all copies to us at the above address via the U.S. Postal Service.

Notice of AllowabilityApplication No.
09/773,294

Applicant(s)

Bergmeister et al.

Examiner

Ling-Siu Choi

Art Unit

1713**-The MAILING DATE of this communication appears on the cover sheet with the correspondence address-**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed March 12, 2003.

2. ☒ The allowed claim(s) is/are 12-20.

3. ☐ The drawings filed on _____ are accepted by the Examiner.

4. ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

5. ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

(a) ☐ The translation of the foreign language provisional application has been received.

6. ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

8. ☐ CORRECTED DRAWINGS must be submitted.

(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

1) ☐ hereto or 2) ☐ to Paper No. _____.

(b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the examiner.

(c) ☐ including changes required by the attached Examiner's Amendment/Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the top margin (not the back) of each sheet. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1 ☒ Notice of References Cited (PTO-892)

3 ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

5 ☐ Information Disclosure Statement(s) (PTO-1449), Paper No(s). _____

7 ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

9 ☐ Other

2 ☐ Notice of Informal Patent Application (PTO-152)

4 ☐ Interview Summary (PTO-413), Paper No. _____

6 ☒ Examiner's Amendment/Comment

8 ☒ Examiner's Statement of Reasons for Allowance

Application/Control Number: 09/773,294

Page 2

Art Unit: 1713

DETAILED ACTION

1. This Office Action is in response to the Amendment filed March 12, 2003. Claims 12-20 are now pending.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CAR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms Stephanie A. Wardwell on March 28, 2003.

3. The application has been amended as follows:

Amend the following claims:

⁴
~~15~~ (Amended) A polymer according to claim ²~~13~~ having a M_w/M_n in the range from 20 to 50.--;

Application/Control Number: 09/773,294

Page 3

Art Unit: 1713

⁶
--~~17~~. (Amended) A polymer according to claim ¹~~12~~ having a shear ratio in the range of from about 170 to about 350 and a M_w/M_n in the range from 20 to 50.--;

⁷
--~~18~~. (Amended) A polymer according to claim ⁶~~17~~ having a density in the range of from about 0.95 g/cm³ to 0.96 g/cm³.--;

⁸
--~~19~~. (Amended) A polymer according to claim ⁷~~18~~ having an ESCR condition A greater than 1000 hours and an ESCR condition B greater than 300 hours.--;

⁹
--~~20~~. (Amended) A polymer according to claim ⁸~~19~~ having an onset of melt fracture greater than 2155 sec⁻¹.--.

Allowable Subject Matter

4. Claims 12-20 are allowed.

5. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest reference: Badley et al. (US 5,599,887).

Application/Control Number: 09/773,294

Page 4

Art Unit: 1713

The present invention relates to a polymer of ethylene and optionally a comonomer, the polymer having the following properties: a density = about 0.94 - about 0.96; a HLMI = about 5 - about 45 g/10 min.; a shear ratio = about 150 - about 400; a M_w/M_n = about 15 - about 55; an ESCR condition A > about 1,000 hrs; an ESCR condition B > about 200 hrs; a normalize die swell = about 0.8 - about 1.1; a weight swell = about 300 - about 500 %; and an onset of melt fracture > about 2,000 sec⁻¹, the polymer being obtained in the presence of a catalyst comprising chromium on a support and an organoboron compound as a cocatalyst, the amount of the chromium on the support being from about 0.5 to 5 wt %, wherein the support consists essentially of silica and titania which is between about 3.5 and 10 wt % based on the weight of the support and wherein the support has a surface area of from about 400 to about 650 square meters per gram and a pore volume from about 2 to about 2.7 cubic centimeters per gram; wherein the catalyst has been activated at a temperature in the range of about 600°F and 1100°F in the presence of an oxidizing ambient (summary of claim 12).

Badley et al. disclose a polyethylene and a copolymer of ethylene and at least one α -olefin, the polymer being obtained in the presence of a catalyst and a cocatalyst, the catalyst comprising from about 0.5 wt % to about 5 wt % chromium in a support and being activated with an oxygen-containing ambient at a temperature from about 932°F to about 1292°F, wherein the support being composed of about 80 to about 100 % silica with the remainder being titania and having surface area from about 50 m²/g to about 500 m²/g; pore volume from about 0.5 cm³/g to

Application/Control Number: 09/773,294

Page 5

Art Unit: 1713

about 2.5 cm³/g - the relationship between the pore volume and the surface area meeting the following equation:

$$0.5 \leq \text{pore volume} \leq [(1.14 \times 10^{-7})(\text{surface area})^3 - (1.19 \times 10^{-4})(\text{surface area})^2 + (3.19 \times 10^{-2})(\text{surface area}) + 0.20].$$

Based on this equation, the support having the surface area from 50 m²/g to 500 m²/g would possess the pore volume in the range from 0.5 cm³/g to 1.51 cm³/g. Furthermore, Badley et al. disclose that (1) "[T]he pore structure has a significant effect, with low pore volume and low surface area favoring long chain branch formation" (col. 10, lines 65-67) and (2) "even at these low levels (long chain branching), long chain branching has a significant affect on the rheological properties of an ethylene polymer" (col. 1, lines 36-41). A conclusion can be drawn that polymers obtained from the present invention and the disclosure of Badley et al. would be different. Thus, Badley et al. do not teach or fairly suggest a polymer obtained in the presence of a catalyst comprising a support having a surface area of from about 400 to about 650 m²/g and a pore volume from about 2 to about 2.7 cm³/g.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Application/Control Number: 09/773,294

Page 6

Art Unit: 1713

Conclusion

6. The references cited in the parent cases have been considered and are recited in Form PTO-892 for the record.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is (703)305-0887.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Wu, can be reached on (703)308-2450.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703)308-2351.

Ling-Siu Choi

Ling-Siu Choi

March 28, 2003